

REMARKS/ARGUMENTS

In the office action, the drawings are objected to under 37 CFR 1.83(a). Claim 34 is objected to. Claim 35 is rejected under 35 U.S.C. 112. Claims 1, 15, 24, 27, 32 and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Kim et al (US 2003/0112405).

5 Claims 2, 3, 6, 7, 10, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al in view of Jung et al (US 2005/0030468). Claims 4, 5, 8, 9, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al in view of Jung et al as discussed above, and further in view of Nakahara et al (US 6,989,879) and Takako et al (US 2003/0058264). Claims 25, 28 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al in view of Jung, and further in view of Cheng et al (US 7,061,560). Claims 22, 23, 26, 31 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al in view of Chung et al (US 2004/0012750).

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1. Objection of the drawings:

15 The drawings are objected to under 37 CFR 1.83(a) for reasons of records, as cited in page 2 in the above-identified Office action.

Response:

The first alignment layer, the second alignment layer, the third alignment layer and the fourth alignment layer are shown in **Fig. 11 of the application**. Specifically speaking, the first alignment layer disclosed by Claim 4 can be supported by **the alignment layer 50b** illustrated in Fig. 11, the second alignment layer disclosed by Claim 5 can be supported by **the alignment layer 50a** illustrated in Fig. 11, the third alignment layer disclosed by Claim 35 can be supported by **the alignment layer 36a** illustrated in Fig. 11, and the fourth alignment layer disclosed by Claim 35 can be supported by **the alignment layer 36b** illustrated in Fig. 11. Therefore, Claim 35 should be allowable under 37 CFR 1.83(a). Reconsideration of Claim 35 is politely requested.

2. Objection of Claim 34:

Claim 34 is objected to because of the following informalities: Claim 34 is claimed as to depend on claim 21; however, claim 21 is canceled. Therefore, for the examination purpose, claim 34 will be depending on independent claim 15.

Response:

Claim 34 is amended to overcome the objections presented by the Examiner. Claim 34 is corrected to depend on Claim 15, and no new matter is added. Reconsideration of Claim 34 is politely requested

3. Objection of Claim 35:

Claim 35 is rejected under 35 U.S.C. 112 for reasons of records, as cited in page 3 in the above-identified Office action.

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Response:

Examiner points that “a third alignment” and “a fourth alignment” taught by Claim 35 were not supported in the specification. However, the third alignment layer and the fourth alignment layer are shown in paragraphs [0020]-[0031] of the specification. Specifically speaking, the first alignment layer disclosed by Claim 4 can be supported by the alignment layer 50b illustrated in Fig. 11, the second alignment layer disclosed by Claim 5 can be supported by the alignment layer 50a illustrated in Fig. 11, the third alignment layer disclosed by Claim 35 can be supported by the alignment layer 36a illustrated in Fig. 11, and the fourth alignment layer disclosed by Claim 35 can be supported by the alignment layer 36b illustrated in Fig. 11. Therefore, Claim 35 should be allowable under 35 U.S.C. 112. Reconsideration of Claim 35 is therefore politely requested.

4. Rejection of Claims 1, 15, 20, 21, 24, 27 and 32:

Claims 1, 15, 24, 27, 32 and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Kim et al for reasons of records, as cited in pages 4-5 in the above-identified Office action.

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Response:

The traditional sealant material used in industries may react with the liquid crystal molecules as influencing by the factors of temperature and time or other process factors. It seriously affects the orientations and twists of the liquid crystal molecules in defects and causes contaminations. When a common voltage is applied to the liquid crystal layer 18, the liquid crystal molecules near the sealant 20 twist in a different direction from other liquid crystal molecules, and it results in that the display image near the sealant 20 differs from the other positions of the LCOS display panel 10, and in decreasing the display performance of the LCOS display panel 10. In order to solve those problems, one embodiment of the present application provides a liquid crystal display panel 30 including the spacer wall 42 and the spacer block 42a which separate the liquid crystal molecules from the sealant material. It is an advantage of the present application that the spacer wall 42 is positioned between the sealant 40 and the active region 34a so as to prevent the sealant 40 from contacting and contaminating the liquid crystal molecules in the liquid crystal layer 38, and furthermore to improve the display performance of the LCOS display panel. In addition, the spacer wall 42 can support the first substrate 32 so that silica balls are no longer needed to be mixed in the sealant.

According to paragraph [0047], Kim et al taught a dummy column spacer 260 formed inside the UV sealant 300 in the dummy region to regulate a liquid crystal flow. However, as compared with Claim 1 of the present application, applicant submits that Kim et al do not disclose the spacer wall and the spacer block disclosed in the present application. First of all, according to Figs. 4A-4D and Figs. 7A-7F of Kim's disclosure,

the dummy column spacer 260 cannot support the first substrate 100 from the second substrate 200. In contrast, Claim 1 of the present application teaches “...spacer wall positioned on the second substrate...wherein the spacer wall supports the first substrate”. Since the structure of the dummy column spacer 260 cannot support the first substrate 100, the spacer wall of the present application is distinct from the dummy column spacer 260.

Furthermore, according to claim 6 and claim 7 of Kim’s disclosure, the dotted line type dummy column spacer 27 is positioned inside or outside the dummy column spacer 260, not positioned in a liquid crystal injected opening of the dummy column spacer 260. In contrast, Claim 1 of the present application teaches “at least one spacer block positioned in the liquid crystal injected opening”. As a result, the spacer block of the present application is distinct from the dotted line type dummy column spacer 27.

In addition, as compared with Claim 15 of the present application, Kim et al do not disclose a spacer wall positioned on the second substrate and between the sealant and the active region for enclosing the active region. As shown in Fig. 3, Figs. 4A-4D and Figs. 7A-7F of Kim’s disclosure, the liquid crystal molecules can flow outward through the dummy column spacer 260, and the liquid crystal molecules may contact with the sealant.

Therefore, as compared with Claims 24, 27 and 32, Kim et al do not disclose that the spacer wall separates the liquid crystal layer from the sealant. As compared with Claim 36, Kim et al do not disclose a second spacer block positioned in parallel with the spacer block.

Since Kim et al do not disclose the spacer wall or the spacer block defined in Claim 1 and Claim 15, Claim 1 and Claim 15 should be patentable in comparison with Kim’s disclosure. Reconsideration of Claim 1 and Claim 15 is respectfully requested.

As Claim 36 is dependent upon Claim 1, and Claims 24, 27 and 32 are dependent upon Claim 15, they should be allowed if Claim 1 and Claim 15 are allowed. Reconsideration of Claims 24, 27, 32 and 36 is respectfully requested.

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5. Rejection of Claims 2, 3, 6, 7, 10, 16 and 17:

Claims 2, 3, 6, 7, 10, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al in view of Jung et al for reasons of records, as cited in pages 5-6 in the above-identified Office action.

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Response:

Examiner rejects Claims 2, 3, 6, 7, 10, 16 and 17 as being unpatentable over Kim et al in view of Jung et al. However, Applicant submits that Jung does not disclose the thin film layer corresponding to the peripheral region. According to paragraph [0040], Jung et al disclose that “an *anti-reflection film* (not shown) for preventing a reaction between the sealant 90 and the liquid crystal material *is formed on the sealant 90.*” That is to say, the anti-reflection film of Jung’s disclosure is *formed on the sealant 90.*

Referring to Claim 6, the position of the thin film layer of Claim 6 is different from that of the anti-reflection film of Jung. Neither Kim et al nor Jung et al disclosed clearly that “a second substrate having an active region, a peripheral region surrounding the active region, and a thin film layer patterned corresponding to the peripheral region”, and that “a sealant positioned on thin film layer”. As a result, Jung does not specifically disclose the thin film layer of the present application, and Claim 6 should be patentable under 35 U.S.C. 103(a).

Therefore, applicants believe Claim 6 should be allowable in comparison with the combination of the cited references. Reconsideration of Claim 6 is respectfully requested.

As Claims 7 and 10 are dependent upon Claim 6, they should be allowed if Claim 6 is allowed. Reconsideration of Claims 6, 7 and 10 is respectfully requested.

Referring to Claims 2 and 16, neither Kim et al nor Jung et al disclosed clearly that
5 "the second substrate further comprises a peripheral region surrounding the active region and a thin film layer patterned corresponding to the peripheral region and positioned under the spacer wall", and that "both the sealant and the spacer wall are located on the thin film layer". In contrast, Claims 2 and 16 disclose the thin film layer corresponding to the peripheral region, and the thin film layer is under the spacer wall and sealant, so
10 Claims 2 and 16 should be allowable in comparison with the combination of the cited references.

Furthermore, neither Kim et al nor Jung et al disclose the spacer wall or the spacer block defined in Claim 1 and Claim 15, so Claims 1 and 15 should be patentable
15 comparatively. Since Claims 2 and 3 are dependent upon Claim 1, and Claims 16 and 17 are dependent upon Claim 15, they should be allowed if Claim 1 and Claim 15 are allowed. Reconsideration of Claims 2-3, 16 and 17 is respectfully requested.

6. Rejections of Claims 4, 5, 8, 9, 18 and 19:

20 Claims 4, 5, 8, 9, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al in view of Jung et al as discussed above, and further in view of Nakahara et al and Takako et al for reasons of records, as cited in pages 6-7 in the above-identified Office action.

25 Response:

The Examiner asserts that Nakahara et al disclose alignment films 13 and 23 on the peripheral region, and that Takako et al disclose alignment film can align the liquid crystal molecules vertically at initial state. However, the alignment film 13 and 23 of

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Nakahara is over the entire pixel. The alignment film of the present application is “patterned corresponding to the peripheral region”(as disclosed in Claims 2-10, 16-19), which is different from Nakahara’s disclosure.

5 In addition, Nakahara's does not disclose the first alignment layer and the second alignment layer are both vertical alignment layers, and the reference of Takako et al never disclose or suggest to set the alignment film 33 and 37 on the peripheral region. Therefore, even the combination of the references of Kim, Jung, Nakahara and Takako cannot obtain the structure defined in Claim 4, 5, 8, 9, 18 and 19 of the present application.
10 Reconsideration of Claims 4, 5, 8, 9, 18 and 19 is respectfully requested.

7. Rejections of Claims 25, 28 and 33:

Claims 25, 28 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al in view of Jung, and further in view of Cheng et al for reasons of records, as
15 cited in pages 7-8 in the above-identified Office action.

Response:

Cheng discloses that “the extended scan line metal layers and data line metal layers overlap with each others to form an integrated black matrix 26” (col.3, lines 49-51). In
20 other words, the black matrix 26 is formed surrounding each pixel **in the active region**. However, the patterned thin film is only on the peripheral region of a panel. Since Kim, Jung and Cheng do not teach that the thin film layer that is patterned corresponding to the peripheral region, the combination of Kim, Jung and Chen does not teach all the limitations of the amended Claims 1, 6 and 15. Therefore, applicants believe Claims 1, 6
25 and 15 should be allowable in comparison with the combination of the cited references. As Claim 25 is dependent upon Claim 1, Claim 28 is dependent upon Claim 6, and Claim 33 is dependent upon Claim 15, they should be allowed if Claims 1, 6 and 15 are allowed.
Reconsideration of Claims 25, 28 and 33 is respectfully requested.

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In addition, the priority date of Cheng' application (US 7,061,560) is **Oct. 29, 2003**(TW), which is later than that of this application, **Oct. 1, 2003**(TW). Therefore, Cheng may not be a qualified prior art over this application.

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8. Rejections of claims 22, 23, 26, 31 and 34:

Claims 22, 23, 26, 31 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al in view of Chung et al for reasons of records, as cited in pages 8-9 in the above-identified Office action.

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Response:

Because Kim and Chung do not teach all the limitations in the present claims, such as "*the thin film layer that is patterned corresponding to the peripheral region*" or "*the spacer wall encloses the active region*", the combination of the cited references does not teach all the limitations of Claims 1, 6 and 15. Therefore, applications believe Claims 1, 6 and 15 should be allowable in comparison with the combination of the cited references.

As Claims 22-23 are dependent upon Claim 1, Claim 26 is dependent upon Claim 6, and Claims 31 and 34 are dependent upon Claim 15, they should be allowed if Claims 1, 20 6 and 15 are allowed. Reconsideration of Claims 22, 23, 26, 31 and 34 is respectfully requested.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

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Sincerely yours,

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10 Note: Please leave a message in my voice mail if you need to talk to me. (The time in D.C. is 12 hours behind the Taiwan time, i.e. 9 AM in D.C. = 9 PM in Taiwan.)